



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,617	03/07/2007	Peter Back Knudsen	006921.00015	4838
22907 7590 12/23/2008 BANNER & WITCOFF, LTD. 1100 13th STREET, N.W. SUITE 1200 WASHINGTON, DC 20005-4051				
EXAMINER				
PEACE, RHONDA S				
ART UNIT		PAPER NUMBER		
2874				
MAIL DATE		DELIVERY MODE		
12/23/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/581,617

Applicant(s)

KNUDSEN, PETER BACK

Examiner

Rhonda S. Peace

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 September 2008.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-19 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 05 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date 11/7/2008
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 11/7/2008 was filed in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Response to Arguments

Applicant's arguments filed 9/18/2008 have been fully considered but they are not persuasive. Applicants argue Tiao et al fails to disclose a light guiding plate as required by claim 1. Applicants instead argue that Tiao et al discloses a taper light pipe that is generally shaped as a cube, and therefore the pipe does not qualify as a light guiding plate. The Examiner disagrees.

As stated above, the taper light pipe is generally shaped as a cube, as is apparent from the disclosure of Tiao et al and Figures 2A and 2B. Therefore, the pipe structure includes at least one set of parallel and opposing planar surfaces, and accordingly may be considered a "plate." Tiao et al therefore clearly sets forth the light plate as required by claim 1.

Moreover, the Applicant argues Tiao et al fails to disclose, "the plate being adapted to receive light from one or more light emitters, guide the received light therein substantially in parallel to the light transmissive display. Applicants argue the choice of axes as defined by the Examiner is improper, as Tiao et al does not set forth defining the transmissive display axis as the optical axis of the transmissive display and does not set forth defining the plate axis as the optical axis of the plate.

The fact that the transmissive display axis and the plate axis is not defined specifically as stated above is irrelevant. The Examiner has nonetheless accurately described an existing axis of the plate and an existing axis of the transmissive display which together meet the claimed limitations. It is also noted the current invention does not define the axes in question within the claim, and therefore the claim limitation "a plane of the light transmissive display" may refer to any axis within the light transmissive display, of which several exist, depending upon the coordinate system and reference point used. The Examiner suggests the Applicant further define the claim language to specifically claim a certain axis within, for example, the plate. Such an axis can be defined by, for example, the direction of a light ray within the plate, the axis's relationship to a defined surface of the plate, or the axis's relationship to another element within the system. Given the broadness of a term such as "a plane" or "an axis," such terms are interpreted according to the broadest reasonable interpretation in the art, and therefore it is recommended such claim language is further defined to specifically define the intended axis.

For these reasons, the rejection of claims 1-11 is maintained. Further, claims 12-19 have been rejected in view of Tiao et al as discussed below.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 5, 6, 8, 11, 13, 15, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Tiao et al (US 6,318,863).

Pertaining to claims 1 and 11, Tiao et al discloses a display comprising a light transmissive display 230, a plurality of light emitters 202, a light guiding plate 220 overlapping and being substantially parallel to the light transmissive display 230, and a plurality of tapered light guides 212 each extending between said plate 220 and said emitters 202. See col. 3 lines 7-31. The tapered light guides 212 are each adapted to direct light from an emitter 202 in said plurality of emitters to the said plate 220. The plate acts to guide the light received from said tapered guides 212 and guides light parallel to said transmissive display 230 such that the light is received by and directed through said transmissive display 230. See col. 3 lines 31-47. Note that herein the optical axis of the transmissive display is chosen to define the transmissive display axis, and the optical axis of the plate is chosen to define the plate axis, wherein the light transmissive axis is parallel to the plate axis. The light transmissive display and plate overlap one another in a direction orthogonal to both the plate axis and the transmissive display axis. The above elements are provided, as shown in Figure 2A.

Concerning claims 2, 5, 6, and 8, the tapered light guides 212 extend along the entire length of side 220a of plate 220 and couple light from the emitters 202 through the side 220a of plate 220. See col. 3 lines 41-47. The emitters 202 have a maximum size that is significantly smaller than the plate 220, as seen in Figure 2. The plate 220 has a side 220b facing the transmissive display and being the same area as the transmissive display. See col. 3 lines 46-47. As seen in Figure 2, the distance between

the upper-most emitter 202 and the bottom-most emitter 202 is approximately equal to the length of side 202b. Array 200, comprising emitters 202 and their corresponding electrical elements, is partially positioned between the emitters 202 and the guides 212, as seen in Figure 2.

Addressing claims 13, 15, and 17, the tapered guides 212 are adapted to introduce light into a predetermined side 220a of the plate 220, and the light guides 212 together extend along the substantial entirety of the length of side 220a, as seen in Figure 2A. Tiao et al also discloses the light guides 212 may be formed in a cone shape, thereby resulting in two adjacent light guides 212 being defined by a round shape. See col. 3 lines 38-40. As is apparent from the Figure 2A, each light emitter 202 has a largest physical dimension (for example, diameter) that is significantly lower than the largest physical dimension (for example, the length of side 220a) of the plate 220.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 3, 7, 12, 14, 16, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tiao et al (US 6,318,863).

Concerning claim 3, Tiao et al discloses the device as described above. Tiao et al does not disclose the guides being a single, monolithic element. Nonetheless it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the tapered guides as a single, monolithic element such that said guides are integral, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893).

Pertaining to claim 7, Tiao et al discloses the device as described above. Tiao et al does not disclose the device comprising at most ten emitters. Nonetheless, it would have been obvious to one of ordinary skill in the art to include at most ten emitters in the device of Tiao et al in order to avoid excessive illumination. Moreover, it has been held that discovering an optimum value (such as ten) of a result effective variable (such as the number of emitters included in a device) involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Addressing claims 12 and 16, Tiao et al discloses the device as described above. However, Tiao et al does not directly disclose positioning an electrical element between the tapered portion of the plate and the light emitters, or more specifically between the taper light guides and the light emitters. However, the disclosed types of light sources,

such as LEDs, OLEDs, laser diodes, etc, all require additional electrical elements, for example, to provide electrical power and/or control signals to the light emitter.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to position an electrical element between the taper light guides and the light emitters, to provide the required electrical power and/or control signals to the light emitters.

Concerning claim 14, Tiao et al discloses the device as described above. However, Tiao et al does not directly disclose forming the light guides as a single monolithic element. Nonetheless, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the light guides as a single monolithic element as it has been held that forming in one piece an article which has formerly been formed in multiple pieces involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893).

Addressing claim 18, Tiao et al discloses the device as described above. Note also that Tiao et al discloses four light emitters, which is less than the "at most ten emitters" as recited in the claim. However, Tiao et al does not directly disclose the step of providing one or more light emitters comprises providing at most ten light emitters, i.e. Tiao et al does not disclose always using ten or less emitters. Nonetheless, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the device as having at most ten light emitters, thereby providing ample light for lighting the display, while avoiding excessive illumination that is capable of causing deterioration of the display's image. In the very least, it would have been obvious to one

of ordinary skill in the art at the time the invention was made to form the device as having at most ten light emitters, as a person of ordinary skill has good reason to pursue the technical options within their grasp, such as the proper amount of illumination required for a display. If this leads to the anticipated success, it is likely the product not of innovation, but of ordinary skill and common sense. *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (2007).

Pertaining to claim 19, Tiao et al discloses the device as described above. Moreover, Tiao et al also discloses the display 230 and the plate 220 are positioned to face one another along the plate's side 220b, wherein side 220b has a surface area substantially equal to the surface of the display 230. See col. 3 lines 45-47. However, Tiao et al does not directly disclose the distance between the light emitters as exceeding 25% of the length of the predetermined side (side 220a) of the plate. Tiao et al does, however, disclose an embodiment wherein such an arrangement is possible, wherein only two emitters are provided, wherein the two emitters couple light into the plate via two light guide pipes. In this instance, the light emitters would be spaced at a distance exceeding 25% of side 220a of the plate, as the sides 212b of the guides 212 must cover the entirety of side 220a of the pipe 220. See col. 11 lines 56-64. Therefore, it would have been obvious to one of ordinary skill in the art to form the device such that the distance between the light emitters as exceeding 25% of the length of the predetermined side of the plate, as this is one of the many possible arrangements described by Tiao et al, and a person of ordinary skill has good reason to pursue the technical options within their grasp, such as the proper amount of illumination required

for a display. If this leads to the anticipated success, it is likely the product not of innovation, but of ordinary skill and common sense. *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (2007).

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tiao et al (US 6,318,863), in further view of Tsutsui et al (US 2001/0030571A1).

With regard to claim 9, Tiao et al discloses the device as described above. Tiao et al does not disclose the above device as being used within a mobile phone. However, Tiao et al does disclose the above device as suitable for an LCD display (see col. 2 lines 15-21). Tsutsui et al discloses an LCD used within a mobile phone as a display panel. See ¶ 0031. Therefore, it would have been obvious to one of ordinary skill in the art to utilize the above device in a mobile phone, as this increases the functionality and marketability of the device, as said device is usable in more applications.

Claims 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tiao et al (US 6,318,863), in further view of Bassous et al (US 4,007,464).

Pertaining to claim 10, Tiao et al discloses the device and method as described above. However, Tiao et al does not disclose wherein the step of providing the plate comprises removing tapered portions of the plate so as to provide a tapered part of the plate between each group of one or more said light guides and the portion of the plate overlapping said transmissive display. In other words, Tiao et al discloses light guides **212** are formed separately from plate **220**, and therefore Tiao et al does not disclose forming said guides and plate as an integral material, wherein the tapered portions of

the guides are formed by a process which removes a portion of the material forming the guides and plate, such as etching or patterning. It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the tapered guides **212** and plate **220** of the same material such that guides **212** and plate **202** are integral, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Detroit Stove Works*, 150 U.S. 164 (1893).

Further pertaining to claim 10, Bassous et al discloses a silicon substrate in which a tapered recess is formed in said substrate with an etching process, thereby creating a triangular-shaped recess in the surface of said substrate. See col. 3 lines 28-59 and Figs 1-2. It would have been obvious to one of ordinary skill in the art to combine the teachings of Tiao et al and Bassous et al, thereby forming the tapered recesses in the integral guide/plate structure, thereby forming the device as seen in Figure 2 of Tiao et al, as Bassous et al discloses such an etching process, wherein a portion of the substrate is removed to form a desired geometry, as the process provides a high degree of control to form a desired geometry. See Bassous et al, col. 2 lines 3-11.

Pertaining to claim 4, Tiao et al in view of Bassous et al discloses the device and method as described above. Tiao et al does not disclose the recesses being formed such that two adjacent tapered light guides are defined by a rounded shape. Tiao et al, as seen in Figure 2, shows two adjacent tapered light guides defined by a sharp-pointed triangular shape. Bassous et al discloses the bottom of the recess in the silicon

substrate may be rounded, thereby forming a pyramid-shaped recess with a rounded apex. See col. 3 lines 56-58 and Figs 1-2. It would have been obvious to one of ordinary skill in the art to form the recesses that two adjacent tapered light guides are defined by a rounded shape, as Bassous et al discloses the rounded-apex geometry reduces stress on the substrate. See col. 3 lines 56-59.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rhonda S. Peace whose telephone number is (571)272-8580. The examiner can normally be reached on M-F (8-5).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Uyen-Chau Le can be reached on (571) 272- 2397. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rhonda S. Peace/
Examiner, Art Unit 2874

/Michelle R. Connelly-Cushwa/
Primary Examiner, Art Unit 2874